

# Rhinitis during pregnancy

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## SUMMARY

*In this study three groups of patients were analyzed: 24 pregnant women who had symptoms suggesting a maxillary sinusitis, 23 patients who were thought to have nasal complaints due to the pregnancy and 16 healthy pregnant women as a control group. In 20/24 cases of the first group and 10/23 cases of the second one there was a purulent sinusitis - as confirmed by maxillary sinus irrigations. The best diagnostic tools seemed to be the clinical status, X-ray finding and diagnostic sinus irrigation. The therapy with sinus irrigations and nontoxic antibiotics is advocated.*

## INTRODUCTION

During pregnancy the mucosa of the nasal passages and paranasal sinuses responds to the changed hormonal influences in the body by varying degrees of swelling and congestion. This effect may cause epistaxis, vasomotor rhinitis or acute and chronic sinusitis (Goldman, 1965; Lewis, 1974). Also the immunological status changes during pregnancy and viral infections are more common (Vesikari, 1975).

Pregnant women not uncommonly complain of nasal stuffiness and running nose or postnasal discharge. The aim of our study was to evaluate how often there is a hidden sinusitis behind these often ignored nasal complaints. We wanted also to investigate the clinical picture of sinusitis during pregnancy and its possible harmful effects on the gravidity, labour and the infant.

## MATERIAL AND METHODS

During the year 1975 the maternity care units of the town of Oulu were asked to send all the pregnant women with symptoms of sinusitis or rhinitis to the Maternity Welfare Clinic and/or the Outpatient ENT Clinic of our hospital. 24 of the patients belonged to the group of suspected sinusitis because of their history i.e. headaches, fever, purulent nasal discharges etc.; 23 belonged to a group where the patients were thought to have nasal complaints (stuffiness, running nose etc.) due to the gravidity but with no obvious symptoms of a bacterial infection. To the control group were selected 16 pregnant women who visited the Maternity Welfare Clinic for some reason not complicating the gravidity (belonging to the staff mostly).

The patients were followed until the labour and the eventual complications of the pregnancy, labour and infant were recorded. The gestational week at the time of admission was noted as well. The previous history with respect to sinus infections

and allergy was asked. The clinical nasal status was evaluated by the two ENT surgeons (M.S. and J.K.). Laboratory tests for examination of erythrocyte sedimentation rate, white blood cell count including the differential analysis, haemoglobin, total IgE and nasal cytology were done. Sinus projections for roentgenological analysis of the maxillary sinuses were taken in the groups with suspected sinusitis or rhinitis.

Antral puncture plus irrigation was done when a sinusitis was suspected on ground of the X-ray finding and/or clinical status. Bacterial cultures from sinus washings, from the nose and pharynx were analyzed.

The statistical method was the chi square test.

## RESULTS

The mean ages and the parity showed no differences between the groups. About two thirds of the patients in the sinusitis group were admitted during the second trimester; in the other two groups there were more patients of the third trimester. No differences with respect to the previous ENT history were found.

Table 1. Nasal status of 63 pregnant women as evaluated in otologic examination.

Significance compared with control group

	normal	signs of		significance
		infection	allergy	
sinusitis group	5	16	3	p<0.001
rhinitis group	7	12	4	p<0.001
control group	15	1	0	

The clinical nasal status (table 1) in the sinusitis and rhinitis groups especially with respect to the signs of infection showed a very significant difference compared with the control group. The white blood cell count was almost significantly ( $p<0.05$ ) higher in the sinusitis group and the nasal eosinophils showed a tendency towards higher scores in the sinusitis and rhinitis groups. No other differences were found in the laboratory tests.

The bacterial cultures from the sinus washings were often negative or there was a normal flora cultured. The most common pathogens were *Haemophilus influenzae* and *Streptococcus pneumoniae*. Only in two cases the pathogen was the same in the nose, in two cases in the pharynx and in two additional cases in the nose plus pharynx as that of the maxillary sinus.

In rare cases the X-ray finding was normal (table 2). There were no X-ray pictures taken in the control group and two additional patients of the sinusitis group which were diagnosed to have a purulent sinus infection on basis of the clinical evaluation. The maxillary sinus irrigation yielded pus in 20 cases of the sinusitis and 10 cases of the rhinitis group (table 3).

Table 2. X-ray findings of 47 pregnant patients with nasal complaints.

	normal	mucosal	fluid level	opaque		not done	significance
		thickening		partial	total		
sinusitis group	2	7	6	1	6	2	n.s.
rhinitis group	7	8	2	2	3	0	

Table 3. Results of maxillary sinus irrigation on 47 pregnant patients with nasal complaints.

	positive	negative	not done	significance
sinusitis group	20	2	2	0.05 < p < 0.10
rhinitis group	10	5	8	

With respect to possible other infections or complications of pregnancy no differences were found between the groups. The labour took place almost exclusively after 37th gestational week; the babies weighed over 2500 gr and were healthy in each group.

#### DISCUSSION

There were found altogether 30 maxillary sinus infections confirmed by irrigation in our study. When compared with the figure of roughly 2000 gravidities per year in our town we have a figure of 1.5 per cent for the incidence of the disease during pregnancy. This figure must be considered too low because obviously we could not reach every pregnant patient with a suspected sinusitis or rhinitis. When a calculated figure for Finnish average population (Vainio-Mattila, 1974) is compared with this material an about six-fold increase is seen. The result is about the same with respect to the positive X-ray findings.

Astonishingly often the maxillary sinus irrigation was positive in patients who, according to anamnestic data, were thought to have nasal complaints due to their pregnancy. It is thus not justified to ignore the nasal complaints during pregnancy or to treat them at random with nasal decongestants.

Although we could not find any special complications of the pregnancy, labour or the infant the maxillary sinusitis should be diagnosed and treated as effectively as possible to have the mother's health optimal. Neither should the mother have any purulent infections at the time she is going to the nurse her baby.

According to our investigation the diagnosis of the sinusitis should be based on the suspicion of the disease as well as the clinical status, X-ray finding and maxillary sinus irrigation. The nasal and pharyngeal cultures advised in the literature (Goldman, 1965) seem to be of extremely low value.

During pregnancy the use of unnecessary randomly given antibiotics is not justi-

fied. Therapy with maxillary sinus irrigations is advocated both from the diagnostic and therapeutic point of view. The primary antibiotics to be used in combination with the irrigations are the penicillin derivatives ampicillin and amoxycillin.

#### RÉSUMÉ

Trois groupes de patientes sont analysés: 24 femmes enceintes ayant des symptômes suggérant le diagnostic de sinusite, 23 patientes présentant des plaintes nasales rattachées à la grossesse et 16 femmes enceintes en bonne santé formant le groupe contrôle. 20/24 patientes du premier groupe et 10/23 patientes du second groupe souffrent d'une sinusite purulente confirmée par le lavage du sinus maxillaire. Les meilleurs moyens diagnostiques paraissent être l'examen clinique, l'examen radiologique et la ponction sinusale. Les autres plaident pour une thérapeutique par lavages sinusaux et antibiotiques non toxiques.

#### ZUSAMMENFASSUNG

Es wurden drei Gruppen von Patientinnen in dieser Untersuchung analysiert: 24 schwangere Frauen mit Verdachtsymptomen zu Sinusitis, 23 Patientinnen mit sogenannten Schwangerschaftsnasenbeschwerden und 16 gesunde schwangere Frauen als eine Kontrollgruppe. Durch Kieferhöhlenspülung wurde an 20/24 Patientinnen der ersten und 10/23 Patientinnen der zweiten Gruppe eine Kieferhöhleneiterung festgestellt. Die besten diagnostischen Methoden schienen die klinische Untersuchung, die Röntgenuntersuchung und die Probepunktion zu sein. Es wird eine Therapie mit Kieferhöhlenspülungen und nicht toxischen Antibioten empfohlen.

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